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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/665,137 | 09/18/2003 | Torsten Gerlich | 331.1050 | 5808 |
| 23280 | 7590 | 06/28/2005 | EXAMINER KITOV, ZEEV | |
| DAVIDSON, DAVIDSON & KAPPEL, LLC 485 SEVENTH AVENUE, 14TH FLOOR NEW YORK, NY 10018 | | | ART UNIT 2836 | PAPER NUMBER |

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,137

Applicant(s)

GERLICH ET AL.

Examiner

Zeev Kitov

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 - 8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Examiner acknowledges a submission of the amendment and arguments filed on April 27, 2005. Claims 1 – 8 are amended. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 - 3, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Busato (WO 99/06893) in view of Maller (US 6,256,185). Busato discloses most of the elements of Claim 1 including the electromagnetic valve being actuated by pulse-width modulation and having a pulsed mode and a proportional mode having a higher frequency than the pulsed mode (Specification, page 7, lines 4 – 34), a solenoid (element 46 in Fig. 4) a power source for supplying the solenoid with electricity (+14.0 VDC in Fig. 4); a control unit (element 113 in Fig. 4) generating pulse-width-modulated signals (upper trace in Fig. 9); a switching device (element 26a in Fig. 4), the solenoid receives the pulse-width-modulated signals of the control unit via the switching device.

However, it does not disclose a suppression device. Maller discloses the suppression devices (elements D3 and Z3 in Fig. 4) suppressing induced high voltages at the solenoid. Both references have the same problem solving area, namely providing solenoid valve activation system. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Busato solution by adding the protecting diodes according to Maller, because as Maller states (col. 7, lines 40 – 58), these diodes help to protect transistor against transients and help to reduce a power dissipation.

Regarding Claim 2, Maller discloses the suppression device as a free-wheeling diode (element D3 in Fig. 4) connected in parallel to the solenoid. A motivation for modification of the primary reference is the same as above.

Regarding Claim 3, Busato discloses the valve being actuated in a proportional mode with a pulse frequency of 200 Hz (Specification, page 16, line 34 – page 17, line 2)

Regarding Claim 7, Busato discloses the switching device as a power transistor (element 26a in Fig. 4).

Regarding Claim 8, Maller discloses a diode (element Z3 in Fig. 4) connected in parallel to the power transistor. A motivation for modification of the primary reference is the same as above.

Claims 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Busato in view of Maller and Klotz et al. (US 4,915,204). As was stated above, Busato and Maller disclose all the elements of Claim 1. However, regarding Claim 5, they do

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not disclose the power source including the vehicle's electrical system. Since the Klotz et al. invention is intended for use for motor vehicle (col. 1, lines 7 – 15), its solenoid valve actuation system (element 3280 in Fig. 27B) is inherently fed by the vehicle's electrical system. Both references have the same problem solving area, namely providing solenoid valve activation system. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the modified the Busato solution by applying it in the motor vehicle engine system, because such application would substantially expand the market of the Maller control system manufacturer.

Regarding Claim 6, Klotz et al. disclose the solenoid valve actuation system (elements 3250 and 3280 in Fig. 27B, col. 108, lines 22 - 35), which is a part of transmission control system (element 3050 in Fig. 27A) controlled in turn by the engine controller (element 3020 in Fig. 27A, col. 45, line 42 – col. 47, line 46). A motivation for modification of the primary reference is the same as above.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Busato in view of Maller and Stumpf (US 4,851,959). As was stated above, Busato and Maller disclose all the elements of Claims 1 and 3. Claim 4 differs from Claim 3 by a value of the activation frequency equal to 50 Hz. Stumpf states that the frequency is selected to satisfy conditions of series resonance in the LC tank of the activation circuit (elements 14 and 25 in Fig. 4). It is clear therefore, that with a change of the solenoid inductance and the capacitor value, the frequency should be adjusted accordingly. Therefore, it

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would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the activation frequency to some specific value according to Stumpf (including 50 Hz), because as Stampf states (col. 1, line 67 – col. 2, line 6), the frequency is to be set such to satisfy conditions of a series resonance in the LC tank, which is further used for detection of a plunger position. For some combination of the inductance and capacitance, a preferable frequency is 70 Hz, for other, it would be 50 Hz. It is obvious therefore, that a particular frequency can changes according to selection of the valve inductance and the capacitor value. Selection of particular frequency in such case is a designer's routine task.

Response to Arguments

Applicant's Arguments have been given careful consideration but they are moot in view of new ground of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (571) 272 - 2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272 – 2800, Ext. 36. The fax phone number for organization where this application or proceedings is assigned is (703) 872-9306 for all communications.

Z.K.
02/10/2005



BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800